

Virtual Reality as a Transformative Learning Experience to Reduce Implicit Racial Bias

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Abstract: Virtual reality promotes prosocial behavior on various issues, including homelessness, ageism, and the environment. Recently researchers have explored the potential for a virtual reality experience to promote an empathic perspective transformation with promising results. The purpose of my proposed research is to investigate and explain the effectiveness of virtual reality as a strategy to bring about a transformative learning experience through historical empathy and reduce implicit racial bias. The expected outcomes of my research will show virtual reality as an intervention to reduce implicit racial bias through historical empathy. Consequently, indicating engagement in virtual reality is more effective than traditional methods, a 2D desktop or written transcript. Results of this proposed study are hypothesized to demonstrate that virtual reality is a beneficial strategy for prosocial behavior.

Keywords: virtual reality, historical empathy, transformative learning, implicit racial bias

Ruth Bader Ginsberg (n.d.) once said, "I think unconscious bias is one of the hardest things to get at." Unconscious or implicit bias is the underlying stereotypes, prejudices, and attitudes directed toward an individual or group without conscious awareness (Oberai & Anand, 2018). The implicit biases ubiquitous in our society are gender, age, sexuality, and race. Research on various interventions involving the latter, implicit racial bias, has produced mixed results. A recent systematic review reported that different intervention approaches, which include identifying with the outgroup, adopting egalitarian views, and implementing counter-stereotypical methods, discovered these techniques ineffective (Fitzgerald et al., 2019).

Attempts to understand racism through individual and societal frameworks have resulted in several theories. Allport's (1954) pioneering work on prejudice and intergroup social relations explained group behaviors in the context of ingroup and outgroup interaction. Social identity theory seeks to explain how the groups that individuals belong to shape their identity and social acceptance, further advancing the ingroup and outgroup concept (Tajfel et al., 1979). Efforts to identify more subtle forms of prejudice and discrimination resulted in aversive racism, described as avoiding the outgroup (Dovidio et al., 2017). Microaggression theory addresses the issue of subtle and often implicit derogatory everyday slights by a majority group towards a minority (Sue, 2010). The prejudice habit model discusses that prejudice results from external and internal motivation (Devine, 1989). Based on Forscher et al. (2017) the premise that unintentional bias is an "unwanted habit that can change through motivation, awareness, and effort" (p. 2). A study by Devine et al. (2012) produced an evidence-based habit-breaking method to reduce racism; further randomized controlled testing suggested that participants sustained the effects for up to three years. Greenwald and Banaji (1995) developed an implicit social cognition paradigm,

arguing that some biases are unexpressed by the individual rather than an unconscious judgment that affects perceptions and behaviors. The Implicit Associations Test (IAT) uses a framework to measure implicit bias. It was implemented in numerous studies on implicit racial bias (Banakou et al., 2018; Groom et al., 2009; Peck et al., 2013).

Transformative Learning Theory

The adult educational model, transformative learning theory (TLT), was developed to describe the mental process learner experiences, resulting in a change of previously held beliefs and subsequent behavior. First originated by Jack Mezirow (1978a), the paradigm attempts to explain the phenomenon of a *disorienting dilemma* that triggers metamorphosis in previous beliefs and world views. According to Mezirow, the learner then progresses through stages, including recognition, exploration, and acquiring knowledge to make an informed change in perspective. The final stage of the theory is the implementation of the newly acquired perspective (Mezirow, 1991). Outcomes range from self-efficacy, to awareness, and confidence in one's critical thinking abilities (Dirkx et al., 2006).

The word transformation implies a change, to alter, modify, or sometimes, a complete metamorphosis of a person, place, or thing. Transformative learning theory (TLT) is an adult educational theory created in the 1970s by Jack Mezirow (1978a) after a groundbreaking study for the Department of Education on adult women returning to a college program after a hiatus and the factors that hindered or facilitated their success (Mezirow, 1978a). The qualitative data concluded that participants experienced a personal transformation in perspective and personal growth accompanied by a change in worldview. Based on this analysis, Mezirow developed ten phases of transformative learning to explain an adult change in perspective as shown in Table 1.

Table 1
Ten phases of transformative learning proposed by Mezirow (2000)

Phase	Characteristics
Phase 1	A disorienting dilemma
Phase 2	A self-examination with feelings of guilt or shame
Phase 3	A critical assessment of epistemic, sociocultural, or psychic assumptions
Phase 4	Recognition that the process of transformation is shared
Phase 5	Exploration of options for new roles, relationships, and actions
Phase 6	Planning of a course of action
Phase 7	Acquisition of knowledge and skills for implementing plans
Phase 8	Provisional trying of new roles
Phase 9	Building of competence and self-confidence in new roles and relationships
Phase 10	A reintegration into one's life based on perspective

Note. Reprinted from *The evolution of John Mezirow's transformative learning theory*, by A. Kitchener, 2008. *Journal of Transformative Education*, p. 105. Copyright 2008 by Sage Publications.

The theory proposes that following the disorienting dilemma is a period of self-examination. Learners examine preconceived assumptions, known as the phase of critical reflection. Brookfield (2000) describes critical reflection as the process of constructing and deconstructing meaning. Although Mezirow's (1978a) traditional view of critical reflection is based on purely cognitive aspects, critics claim (Taylor, 2015). After some debate, Mezirow conceded that "affective, emotional, and social aspects were important to the framework" (Kitchenham, 2008, p. 110). Therefore, critical reflection is a thinking process by which severe consideration and contemplation result in a meaningful combination of cognitive and emotional factors (Taylor, 2015).

Empathy and Historical Empathy

Empathy is a complex construct described as the ability to put oneself into another's shoes to understand the emotions and feelings of that person (Ioannidou, & Konstantikaki, 2008).

Empathy is thought to develop from a young age and is a vital personality characteristic (Ornaghi et al., 2020). Each person can vary in their capacity to empathize. However, this ability is not only an intrinsic emotion it can also be learned as a social psychological construct.

Empathy connects people and plays a vital role in building a stronger society (Riggio et al., 1989).

Much like empathy, the definition of *historical empathy* has been under scrutiny since its inception. The literature describes historical empathy as an educational framework integrating historical context, perspective-taking, and emotional connection (Davis et al., 2001). Historical context comprehension of a past figure's life event aids in understanding their decisions and actions (Endacott & Brooks, 2013). *Taking a walk in someone else's shoes* is the expression often used to describe perspective taking, in this case, the viewpoint of an actual person in history. Emotional connection creates a deeper understanding of the feelings and motivations of the lived experience (Huijgen et al., 2017). Historical empathy relies upon non-fiction narrative-based perspective-taking to "develop an enriched understanding of certain figures and events during a specific time in history" (Davis, 2001).

Initially, historical empathy research focused on the cognitive or affective components separately, eventually integrating the two elements (Endacott, 2014). Early research focused on the more cognitive part of historical empathy using influential historical figures, for example Neville Chamberlain (Foster, 1999) and Harry Truman (Foster & Yeager, 1998). In cognitive exercises students were encouraged to understand and evaluate historical decisions through rational inquiry and perspective-taking which are components of historical empathy.

Additionally, the affective element of empathy was emphasized through marginalized characters, for instance, women (Kohlmeier, 2006) or Holocaust victims (Riley, 1998), and attempted to explain the emotional element through the feelings and motivating actions at that particular time in history. Endacott and Brooks (2013) proposed a dual process model based on empathy, the cognitive, affective construct. A study on Truman's decision to drop the bomb suggested a strong correlation between cognitive perspective-taking and emotional empathy.

Historical empathy differs from empathy as there is a contextual component to historical empathy. The viewer experiences a figure from the past in the framework of the environment, socio-political and cultural time (Endacott & Brooks, 2013). Huijgen et al. (2017) studied

historical perspective-taking and concluded that prior knowledge of the historical event was critical in participants' ability to disregard present-day thinking. Endacott (2014) suggested a balance between perspective-taking and historical context.

Virtual Reality as a Strategy to Reduce Implicit Racial Bias

A relatively new and innovative intervention method for reducing racial bias is virtual reality (VR). Schroeder (2008) described VR as an alternate environment generated by technology with the potential to interact and immerse oneself. VR has a history dating to the 1800s, from the first stereoscope to the current Oculus headset. In the 1920s, pilots used the first flight simulator, invented for training and education. A toy company introduced an early form of VR in 1939 with the popular View-Master, which included hundreds of reels ranging from cartoons to scenic trips. The VR experience has 60 years of View-master history. Filmmaker Morton Heilig believed films should be a sensory experience creating the first immersive film experience called Sensorama that incorporated vision, hearing, touch, and smell. VR has emerged in the next four decades with gaming, entertainment, education, healthcare, and wellness applications.

A VR experience replicates real life, incorporating the senses, sight, hearing, and touch for an interactive, reactive experience. Designers create controlled environments to surround the viewer with a realistic narrative representation. Markowitz and Bailenson (2021) revealed in a review the impact a climate change VR simulation had on participants; the literature showed an increase in awareness and altruistic motivation, although the authors acknowledge the lack of longevity studies. To discover a relationship between a homeless perspective-taking VR experience and volunteerism, Herrera et al. (2018) recruited 130 U.S. university students. They found a lasting compassionate attitude toward the homeless population, showing participants' willingness to volunteer. A recent study by Banakou et al. (2018) virtually embodied 28 male student participants in the body of theoretical physicist Albert Einstein. The data suggested reduced ageism and a change in cognitive processing with higher executive functioning (Banakou et al., 2018).

Immersive VR is widely regarded by scholars and researchers as an instrument to induce and foster empathy (Bollmer, 2017; Herrera et al., 2018; Rueda & Lara, 2019). The term empathy machine has been used to describe the ability of VR to transport the viewer into perspective and lived experience. Barbot and Kauffman (2020) determined that a VR experience can be crucial for increasing empathy. There is a current trend in using technology to enhance different experiences that would otherwise be inaccessible. For example, an immersive journalism experience on specific news events yielded higher VR empathy than a 2D platform (Bujić et al., 2020). A recent meta-analysis examining nine empirical studies on empathy, perspective-taking, and immersive VR concluded that an empathy-promoting experience could lead to positive social behavior toward the outgroup (Ventura et al., 2020). The data showed that perspective-taking VR technology is more effective than traditional methods in motivating prosocial behavior (Ventura et al., 2020). A study by Schutte and Stilinović (2017) on 24 university students concluded that the more profound the engagement in the experience, the more empathetic the connection between the effects of an immersive documentary about a refugee camp and a young migrant's plight.

Research on the potentiality of VR as a medium to reduce implicit racial bias in various settings revealed positive outcomes. In one study, Peck et al. (2013) designed a simulation whereby 60 female participants were immersed in one of four avatar conditions, black, white, brown, and purple; data suggested a higher level of engagement and a reduction in implicit racial bias. A similar study with 90 female students indicated that an immersive VR experience in either a Black or White avatar decreases implicit racial bias in white participants. Additionally, the data showed that the effect was sustained for at least one week (Banakou et al., 2016). In another study on VR as a viable tool in the courtroom, 92 male and female participants revealed lower implicit racial bias and a higher cognitive assessment of insufficient evidence after a mock legal scenario (Salmanowitz, 2018).

Indications for Adult Education

VR has been widely used in training, for example, military simulations, manufacturing, and medical field training. A case study on VR pilot training in Air Force training explored constructive, experiential, and active theories. Participants expressed a higher engagement and a better understanding of concepts (Lignos & Korres, 2021). Additionally, the healthcare field developed VR experiences for training and patient care, allowing students to learn from trial and error (Pottle, 2021). A review of 26 peer reviewed journal papers showed the efficacy of VR as a teaching model for skills building and experiential learning students would not have in the real world (Asad et al., 2021). Although research is sparse, published studies indicate that VR is a positive tool to enhance the learning experience.

Conclusion

Systemic racism affects multiple facets of Black lives in America. Efforts to discover new strategies to mitigate implicit racial bias have resulted in numerous interventions, including breaking prejudicial habits and counter-stereotyping, with mixed results (Forscher et al., 2019). However, an immersive experience is considerably more effective than other traditional methods in decreasing racial bias (Peck et al., 2013).

My research aims to establish a VR experience as a viable strategy using a historical narrative documentary to reduce implicit racial bias. VR is a powerful empathy machine becoming increasingly popular in multiple prosocial applications. Technology is not a cure-all, although the research proves to be optimistic about the ability to transform perspectives and affect social change.

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